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Reply to Office Action of September 9, 2004

REMARKS/ARGUMENTS

Prior to this Amendment, claims 1-19 were pending in the application.

Claim 1 is amended to further clarify the claim language and to further distinguish the claimed availability model from prior models. Claim 2 is amended to clarify the platform parameters that are included in the software availability model. No new matter is added for this amendment with support found in para. [0047].

Claims 1-19 remain in the application for consideration by the Examiner.

Drawing Objections

In the Office Action Summary, the drawings were indicated as being objected to by the Examiner. However, the objection was not explained in the Detailed Action portion of the September 9, 2004 Office Action. Applicant will timely submit drawing amendments or new drawings to address any deficiencies when the objections are explained in sufficient detail by the Patent Office.

Objections to the Specification

In the September 9, 2004 Office Action, the specification was objected to based on several misspellings and due to contrasting uses of the term "rate." The specification is amended to address these objections including deleting uses of units of frequency (i.e., units of Hertz).

Claim Rejections Under 35 U.S.C. §112

In the Office Action, claims 1-5, 8-15, 17, and 18 were rejected under 35 U.S.C. §112, second paragraph as being indefinite.

The terms considered indefinite in claim 8 are believed to have accepted meaning in the technical arts and additionally, definitions or exemplary definitions are provided in Applicant's specification. Therefore, additional defining language is not believed necessary to meet the requirements of §112, second paragraph.

The other claim rejections are believed addressed by the claim amendments presented herein.

Claim Rejections Under 35 U.S.C. §102

In the Office Action, claims 1-5, 16, and 19 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pat. No. 6,393,386 ("Zager"). This rejection is traversed based on the following remarks.

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Regarding claim 1, the Office Action cites Zager at col. 11, lines 10-16 for teaching "the model includes an aggregate failure rate and aggregate repair time for each said classes of failures in the form of aggregate fault and impact data." Applicant disagrees with this interpretation of Zager. Zager at this citation and elsewhere provides no discussion of determining an aggregate failure rate or an aggregate repair time for various classes of failures of a software component. Zager describes an "Impact" at col. 11, lines 54-57 as "the description of a disruption in service for some portion or user A of the external system owing to a correlated disruption in service o some portion B. For instance, a database suffers sympathetically if a business application cannot reach it owing to router failure." An impact as defined by Zager differs from a failure rate and from a repair time and there is no suggestion that the "aggregate fault and impact data" would include a failure rate or repair time.

Hence, there is no teaching or suggestion of a model that includes "an aggregate failure rate" for a set of failure classes for a software component or even the determination of a failure rate for one class of failures for such component. Further, Zager does not teach a model that includes a repair time for each class of failure for a software component or that these times should be aggregated for use in a software availability model. In other words, Zager does not discuss repair times for root causes, non-root causes, and performance degradation failures or aggregating such repair times (which apparently may be hardware or software based faults). For these reasons, Zager does not support an anticipation rejection of claim 1, and Applicant respectfully requests that this rejection be withdrawn.

Claims 2-5 depend from claim 1 and are believed allowable at least for the reasons for allowing claim 1. Further, the Office Action in rejecting claim 2 asserts that it is inherent to include platform parameters in an availability model. However, Zager fails to teach the software availability model as discussed with reference to claim 1, and further, there is no teaching that the platform parameters define platform problems causing failures and affecting recovery times related to the platform problems. Further, Zager does not teach that "at least a portion of the platform parameters are used to determine the aggregated repair time" with Zager not teaching the determination of such an aggregate repair time nor using platform parameters to determine it.

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In rejecting claim 4, the Office Action cites col. 2, line 64 to col. 3, line 3 stating that teaches monitoring a network so it must be inherent to include time to detect and identify an error as part of a repair time. Again, Applicant disagrees that Zager ever teaches or suggests tracking and determining the repair time for a software component or aggregating such repair times. Further, it is not inherent that even if repair time is measured that it would include time to detect and identify such an fault or failure. At col. 2, line 64 to col. 3, line 3, Zager is merely discussing an object of its invention is to be able to understand "impacts" within a networked system but provides no teaching of determining repair times of a software component or what that may entail. For these additional reasons, Zager does not support a rejection of claims 2 and 4.

Regarding claim 16, the Office Action cited Zager for teaching "a failure rate and recovery rate is determined for said event" at col. 3, lines 36-47. Zager at this citation fails to teach determining a failure rate or a recovery rate for a software error, and instead teaches gathering information about what components are in a network, what services are provided by the various components, and gathers information on malfunctions or performance degradation, and likely "impacts" on the system. However, as discussed relative to claim 1, Zager does not teach that "impacts" include a failure rate for a particular software error and does not teach determining the recovery rate from such software error. Impacts as used by Zager has to do with one service being affected by the degradation or unavailability of another service or component (e.g., cannot access a database when a router is out and the like). This is different than what is called for in claim 16, and this rejection should be withdrawn for at least this reason.

Further, the Office Action stated that Zager at col. 3, lines 4-11 and 36-47 teaches incorporating the "event data" into the recoverable state data. However, as discussed above, the Zager event data does not include a failure rate or a recovery rate for a software error and therefore, cannot teach incorporating this into a previously determined recoverable state. As discussed at col. 3, lines 4-11, Zager teaches that the object of the Zager method is to model service relationships connecting resources in a network to show the current make-up of the network but does not teach modeling a software error to include determining failure rate and recovery rate for the error and then incorporating these rates into a recoverable

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state. For this additional reason, Zager fails to anticipate or even suggest the method of claim 16.

Claim 19 is directed to a computer program product with limitations, and the reasons provided for allowing claim 16 are believed equally applicable to claim 19.

Claim Rejections Under 35 U.S.C. §103

Further, in the Office Action, claims 6-15, 17, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zager in view of an article entitled "Understanding Fault-Tolerant Distributed Systems" ("Cristian"). This rejection is traversed based on the following remarks.

With regard to claim 6, the Office Action cites Zager (as with claim 1) for teaching a software availability model that includes an aggregated failure rate and an aggregated repair time for each software component. This teaching is said to occur at col. 11, lines 11-16 by "categorization of reliability according to service." Categorization does not require including failure rates for software components on a node and aggregated values of such rates in a software availability model and also, does not teach including repair times for the software components as an aggregated value. As discussed in Applicant's specification, the failure rates and repair times may vary widely and aggregation allows a single value to be used in a model. Zager fails to teach the software availability model of claim 6, and at the portion cited in the Office Action, Zager teaches aggregating fault and impact data for a service but, again, the impact data is different than called failure rates and repair times, and how reliable a database service is for a "given set of disparate users" does not teach the software availability model of claim 6. Cristian is not cited to overcome this deficiency in Zager but is cited for other teachings. Hence, Applicant requests that the rejection of claim 6 based on Zager and Cristian be withdrawn because each and every element is not shown or suggested.

Claim 7 depends from claim 6 and is believed allowable as depending from an allowable base claim.

Regarding independent claim 8, the Office Action cited Zager for teaching predicting impacts of faults and modeling recovery. However, at the cited lines 4-11 of col. 3, Zager is merely stating its objective to model changes in the make-up of a network. The "impacts" of faults, as discussed earlier, is defined in Zager as the effect a fault or degradation of a service or component has on other services or

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components within a network. This does not, however, teach determining failure rates and recovery rates, and certainly not for warm recoverable and non-warm recoverable errors of a software component as called for in claim 8. Cristian is not cited for, and cannot, address this deficiency in Zager. Hence, the rejection of claim 8 is not supported by the combined teachings of Zager and Cristian, and the rejection should be withdrawn.

Claims 9-15 depend from claim 8 and are believed allowable as depending from an allowable base claim.

Claim 17 depends from claim 16, which is believed allowable over Zager for the reasons provided above. Cristian does not overcome the deficiencies of Zager discussed with reference to claim 16, and hence, claim 17 is believed allowable as depending from an allowable base claim. Further, neither reference discusses determining the fraction of recovery failures as called for in claim 17 nor incorporating such a fraction value in a recoverable state as part of modeling a software error. For these additional reasons, the rejection of claim 17 is improper and should be withdrawn.
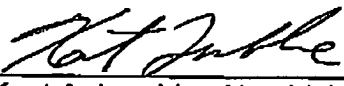
Conclusions

In view of all of the above, Applicant requests that a timely Notice of Allowance be issued in this case.

No fee is believed due for this submittal. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

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